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PHYTOLOGIST.

A BOTANICAL JOURNAL.

Ὡς ἐμεγαλύνθη τὰ ἔργα σου, Κύριε!—πάντα ἐν σοφίᾳ ἐποίησας.

ΨΑΛΜ. ργʹ. 24.

Benedicite universa germinantia in terra Domino; laudate et superexaltate EUM in secula.—*Hymn. iii Pueror. v. 76.*

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BELGIAN BOTANY.

Three Days' Botanizing among the Dunes of West Flanders (Belgium).

A few details concerning the flora of a sea-coast opposite to that of England will not be uninteresting to the readers of the 'Phytologist.' It is the result of what I saw and observed in an excursion with the Botanical Society of Belgium, at the beginning of July, along the Belgian coast.

First of all, be it known that a Botanical Society has been quite recently founded here, which, at its opening meeting, decided that its first *réunion extraordinaire* should take place at Nieuport, and that it should be followed by an extensive botanical tour. The Society having obtained from the *Ministre des Travaux publics* railway tickets at reduced prices, the president sent several to the Horticultural Institution of Ghent, which liberal action urged our honourable and esteemed director, Mr. Van Houtte, to permit me and several comrades to join the scientific expedition in question. I took advantage, much more willingly, of this opportunity of visiting the borders of the North Sea, when I knew that our professor of botany, M. Crépin, was to be of the party; for I felt convinced that, having him for our guide, our researches would be well directed, and that we should amass an abundant collection of interesting species.

On the 5th of July, when we set out for Ostend, where the members of the Society and amateurs who had accepted the invitation were to assemble, and to start from thence to Nieuport, botanizing *en route*, those of our future companions who had preceded us were waiting on the platform for our arrival; amongst them was the president, M. B. Dumortier, a name well known in the scientific world, and who welcomed the new arrivals with his accustomed urbanity.

Loaded with our equipage, presses, and vasculums, we passed through Ostend, and astonished the natives by the variety and originality of our costume and equipments. I have reasons for believing that the inhabitants of Ostend will long preserve the memory of our strange appearance among them, so unlike that of the sea-bathing population who resort thither at this period of the year.

BRITISH MUSEUM

Having had a slight refreshment at the Hôtel St. Denis, where some of our friends had slept the previous night, we directed our steps to the Pavillon des Dunes, the place fixed for our departure. Many amongst us had never seen the sea, and the scene that it presented that day, seen from the pier, must have been more pleasing than striking. As far as the eye could reach, the ocean was smooth as a mirror; the gentle rippling of the waves scarcely disturbed the uniformity of the glass surface. Perhaps, thought I, while looking west, I am about the explore the Belgian coast, whilst several of my countrymen are walking along that of England, botanizing like myself. I was engaged in this reverie, when I found that the company was being divided into bands, so as to explore all the points of the dunes at once, in walking along the coast in three parallel lines. The weather calm, coupled with a splendid sun, predicted a beautiful mild afternoon, so we set out as nimble and as cheerful as a party of schoolboys. For the same reason that the sea was quite a fresh thing to several of us, so were the dunes a *terra incognita* (unexplored tract) for the majority. The flora was a novelty; those plants which, by their gigantic rhizomes, fix the moving and capricious sands, attracted a large amount of our admiration. First of all we paid our attentions to those enormous tufts of *Ammophila arenaria,* with its rush-like leaves, from the centre of which rise very large spikes loaded with tremulous stamens; then the numerous colonies of *Elymus arenarius* and *Triticum junceum,* mingled with a thousand varieties of *Triticum repens,* a type so polymorphous, that, according to certain authors, it comprehends several distinct species, few of which are as yet known or brought to light.

Having pretty well examined the tops of those dunes and their maritime slope, we made for the other side, to look at the produce of the meadows which lay at their foot, for in the former situation the flora is always very monotonous, and for the most part poor. The following common species are only to be met with, mixed with those already named, on the sea side of these hills:—*Silene conica, Viola sabulosa, Cakile maritima, Helianthemum vulgare, Anthyllis maritima, Eryngium maritimum, Jasione montana, Hippophaë rhamnoides, Salix repens, Carex arenaria, Festuca arenaria,* Osbeck (*F. sabulicola,* L. Duf.), *Kœleria albescens,* DC., *Phleum arenarium.*

On the grassy plots of the inner dunes we found in abundance *Thalictrum minus*, a species met with everywhere from Knocke to the French frontiers. Between Mariakerke and Middelkerke *Trifolium scabrum, Medicago minima, Plantago Coronopus*, scarcely visible in the grass; and *Cerastium tetrandrum* mixed with fine specimens of *Cochlearia Danica.* Here and there were a few solitary plants of *Asparagus officinalis* and small tufts of *Arabis sagittata ;* then we met with enormous patches of *Sedum acre*, which, with the *littorale* variety of *Galium verum*, completely carpeted the dunes. Among the *G. verum* and *G. Mollugo*, which were very abundant, we saw here and there a hybrid which derived its being from these two species. Our attention was drawn to a curious form of *Erodium cicutarium*, with small pale flowers, which I think Mr. Jordan has termed his *E. Boreanum.* In the gaps made by the sand, and in the hollows in the roads, we remarked a robust variety of the *Arenaria serpyllifolia*, which constitutes the *A. Lloydii*, Jord.

On arriving at Middelkerke we espied on the sandy banks of a little garden, the rare *Carduus tenuiflorus*, which we saw again on that and the following days along the coast in the neighbouring villages. Another remarkable synanthera, but common in that part, is the *Onopordon Acanthium*, whose majestic habit is more like that of an exotic plant than of an indigenous species. In another garden we obtained *Fumaria densiflora*, DC. (*E. micrantha*, Lagasc.), which was found by Professor Crépin; a very beautiful species, and quite new to the general flora of this country.

A little beyond the village we came to a boggy meadow, which appeared to be the rendezvous of several interesting species,—*Sagina nodosa, Helosciadium repens, Apium graveolens, Glaux maritima, Cineraria palustris, Herminium Monorchis, Epipactis palustris, Juncus obtusiflorus, Scirpus compressus, Carex Pseudocyperus, Schœnus nigricans, Alopecurus fulvus, Lemna arrhiza.*

Here and there along the coast the *Cynoglossum officinale, Sisymbrium Sophia*, and *Anthriscus vulgaris* appeared. As far as the environs of Westende we met with nothing but the common species already cited, to which however must be added *Lycopsis arvensis* (common everywhere), *Asperula Cynanchica, Silene nutans, Avena pubescens, Bryonia dioica*, and *Carex trinervis.* As regards the last-named species, well distributed on the western borders of the continent from Bayonne to the Isle of Texel, it is somewhat surprising that it has not yet been found in England. Perhaps it grows at some part or other in our eastern counties with *Carex vulgaris*, with which it has some slight resemblance. In the hard road towards Westende we observed *Scirpus pauciflorus*.

For upwards of an hour the sky had been covered with suspicious-looking clouds, which did not delay advancing in a phalanx towards the sea; this became rather disheartening, especially as there was no shelter obtainable in the neighbourhood. Increasing our steps among the loose sands, where walking costs no small amount of labour, we reached a fisherman's hut built up against a bulwark of sand, which almost hid it completely from view.

At first we hesitated about entering and asking hospitality, as we were ignorant of the language of the country, and thought our eccentric attire might cause a little uneasiness to the good people of these retired parts. However, as the thunder was beginning to rattle overhead, we no longer argued about the matter, but, walking round the humble dwelling, and pushing open the door, we besought its inmates in an Anglo-Flemish vernacular to let us remain under the roof till the storm had passed over; this was cheerfully granted. They offered us the only stools that the cabin possessed, and invited us to draw up to the hearth, where a turf fire was burning.

On leaving this hospitable family we offered a present of money, which was politely declined. Cutting across the fields, we were soon on the paved road from Ostend to Nieuport, where we saw in the distance several of our companions, who had left us at our departure from the Pavillon des Dunes. Like us they had been equally fortunate.

We continued our route in high spirits through Lombartzyde, where the church was adorned with an immense banner, containing the colours, not of one single nation only, but of all together. As it was the *Kermis*, or annual feast of the village, the place on which the fair was held was covered with booths of itinerary merchants, and every description of mountebanks, etc. We went for a spree to try our luck at a wheel-of-fortune, which wheeled in our favour, for it brought us a stock of cakes, of which we took especial care, so as to share them with the rest of the company at the supper table. On fitting seasons gaiety is not inconsistent with gravity; trifles light as air may with propriety mingle in the most important concerns of life. The sage fabulist of ancient times, who laid aside his philosophic garb and assumed the manner of a child, offers an example worthy of imitation. I was both diverted and edified with the great depth of gaiety which unveiled itself in several of our new friends.

In drawing near the gates of Nieuport we were met by the excellent president, Mr. Dumortier, and Mr. Muller, president of the Brussels Linnæan Society, who had gone on before to prepare our quarters. They were all very much pleased to see us in such high spirits, for they expected we were thoroughly drenched, and that our vivacity and good-nature had been carried off by the storm, which had also burst rather furiously over Nieuport.

It may be worthy of remark that fatigue disappears as if by enchantment on arrival at the gates of a town: there and then the pedestrian walks with a more stately bearing, and puts on a brighter countenance. Weary as some of us were, we did not neglect to return the smiles and kind though silent greetings of the fairer part of the population of Nieuport, the Belgian maids, who eyed us at their ease from their casements. If they did not admire the style of our dress and accoutrements, we could not help admiring their healthy and smiling faces. Under the guidance of our friends, who had arrived before us, we drew up at the 'Espérance,' a respectable hostelry, which we admired not more for its antique appearance than for the comfort and attention bestowed upon us by its owners.

Our company was divided into three groups, to be quartered respectively at the Hôtel de l'Espérance, the 'Perroquet,' and the 'Pelican.' I was one of seven who lodged at the 'Perroquet.' Having washed ourselves, and given a little attention to our toilet, we returned to the 'Espérance,' where a comfortable dinner had been prepared, and to which we were ready to do ample justice. The exercise and sea-breezes sharpen the appetite. At the dessert, of course, toasts were proposed; the first to the progress of botany, the second to the honourable president, who, notwithstanding his sixty-five summers, has preserved all his pristine freshness and gaiety intact. Being an excellent narrator, we begged him to recite to us some of his travelling adventures, and he related in detail his famous story, of which he has given a few words in the preface of his 'Florula Belgica.' We were much amused with the comic disasters of poor Pierre Michel, of Nessonvaux, little suspecting that an adventure with gendarmes, guards, and swordsmen, was impending over ourselves. There was a speech given in Flemish by Mr. K——, an alderman of the town, one of the invited guests. Of this we English did not understand a single word, though we applauded all the same. To this the president responded; and, as it was now eleven o'clock, we separated, some to the rooms prepared for them at the hotel, others threaded their way through the silent and solitary streets to reach their home, or rather their roosting-places at the 'Pelican' and 'Perroquet.'

Alas! the day was not yet finished. Our vasculums were full, and their contents needed our attention. An old and experienced member of our band strongly advised us to arrange our plants before retiring for the night, which we did, though, I must say, a little against our will. One o'clock echoed from the belfry when our task was finished.

HAMPSHIRE PLANTS.

Some Localities additional to those mentioned in Dr. Bromfield's Catalogue.—(Phytol. o. s. vol. iii.)

By HENRY TRIMEN.

The following localities are chiefly round Portsmouth, and they were all noted during a short stay there in the past August, 1862. Much more has yet to be done in this part of Hants., especially in Hayling Island, the south coast of which only was explored by me this autumn.

The Isle of Wight attracts so many to its shores, that its botany may be considered complete as far as localities are concerned; whereas the opposite shore is almost deserted by botanists, though doubtless many a good plant would reward the diligent explorer. We want another Bromfield on the mainland of the county, and then we may get a Hampshire Flora.

Ranunculus hirsutus. Very abundant in Portsea Island.
Ranunculus confusus. Salt-water ponds in Portsea Island.

Ranunculus peltatus (?). Gower Pond, near Gosport.

Lepidium Smithii. Common about Southsea, and in Stokes Bay.

Senebiera didyma (*pinnatifida*, Dec.) Abundant in Stokes Bay.

Cakile maritima. South coast of Portsea Island.

Reseda lutea. On Portsdown.

Silene maritima. Abundant in the shingle of Stokes Bay and Portsea Island.

Spergula subulata. On the south shore of Hayling Island.

Cerastium tetrandrum. On the south shore of Hayling Island.

Hypericum Elodes. Gower Pond.

Linum angustifolium. North part of Portsea Island, and at Gosport.

Ononis arvensis (with white flowers). Hayling Island.

Ononis campestris. Common in Portsea Island.

Medicago maculata. Portsea Island.

Melilotus officinalis. Portsea Island.

Trifolium arvense. Southsea Common.

Trifolium striatum. Stokes Bay.

Trifolium scabrum. Stokes Bay and Southsea beach, and Hayling Island.

Trifolium subterraneum. Stokes Bay, (I saw nothing of *Lotus angustissimus* or *Trifolium glomeratum*, both of which Dr. Bromfield mentions as growing on a bank in Stokes Bay: no doubt this was my own fault, or possibly it was too late in the season for them).

Trifolium fragiferum. Very abundant in Portsea and Hayling Island.

Lythrum Salicaria. Stokes Bay.

Ceratophyllum sp.? Gower Pond. Is there any way of determining the species of this genus in the absence of the fruit?

Epilobium palustre (quite glabrous). Gower Pond.

Apium graveolens. Portchester.

Sison Amomum. Common about Portsmouth and in Hayling Island.

Œnanthe pimpinelloides. North part of Portsea Island, in damp pastures.

Œnanthe Lachenalii. Muddy shores of Portsea and Hayling Island.

Silaus pratensis, with *Œ. pimpinelloides*, in Portsea Island.

Crithmum maritimum. Grows sparingly on the low sandy shore of Hayling Island.

Torilis infesta. On Portsdown.

Torilis nodosa. Round Southsea Castle, not common about here.

Conium maculatum. A most abundant weed round Portsmouth.

Galium cruciatum. In Portsea Island.

Galium palustre, β Witheringii. Gower Pond.

Eupatorium cannabinum. In the shingle on the south coast of Hayling Island.

Petasites vulgaris (vel *fragrans*). Under a paling in Hayling Island.

Erigeron acris. Dry bank near Portsmouth.

Inula crithmoides. North side of Portsea Island (Hillsea Lines).

Anthemis nobilis. Abundant on Southsea Common, and the shores of Stokes Bay.

Matricaria inodora, β maritima. Common on the coast.

Matricaria Chamomilla. At the foot of Portsdown.

Filago minima. Southsea Common, abundant.

Senecio sylvaticus. In all parts of Portsea Island.

Carlina vulgaris. South coast of Hayling and Portsea Island.

Centaurea nigra, β radiata. On Portsdown.

Centaurea Calcitrapa. Very abundant at the foot of Portsdown. between Corsham and Wymmering.

Carduus tenuiflorus. Very common in Portsea and Hayling Island.

Helminthia echioides. Portsea and Hayling Islands.

Hieracium sylvaticum. Hayling Island (south coast).

Erica Tetralix. South-west corner of Hayling Island.

Erythræa pulchella. Southsea Common.

Menyanthes trifoliata. Gower Pond.

Cuscuta Epithymum. Abundant on Southsea Common.

Borago officinalis. Well established at Portchester.

Myosotis palustris. Gower Pond, Southampton.

Myosotis cœspitosa. Hayling Island.

Solanum Dulcamara, β marina. A bush, three feet high, on the shore of Hayling Island.

Verbascum Blattaria (the normal variety with yellow flowers). Between Gosport and Alverstoke, truly wild.

Digitalis purpurea (with pale flowers). Shingle, south shore of Hayling Island.

Linaria Cymbalaria. Between the flagstones in front of the hotel in Hayling Island. (This locality exposes the present condition of the island as far as visitors go: it is truly a desert of half-finished houses.)

Veronica polita. Portsea Island, common.

Lycopus europæus. Gomer Pond.

Salvia verbenaca. Abundant on the "glacis" of Portsmouth fortifications.

Calamintha officinalis. Hedgebank, east part of Portsea Island.

Scutellaria galericulata. Gomer Pond.

Scutellaria minor. South-west corner of Hayling Island.

Nepeta Cataria. On Portsdown.

Lamium amplexicaule. On Southsea Common, etc.

Lysimachia vulgaris. Gomer Pond, abundant.

Plantago media. Portsdown.

Amaranthus retroflexus. Waste ground at Southampton.

Salicornia radicans. Hayling Island, mud flats.

Atriplex littoralis. Portsea and Hayling Islands, common.

Atriplex erecta. Cornfields on Portsdown.

Atriplex angustifolia. { Maritime forms, Hayling and Portsea Is-
Atriplex hastata (?). { lands, and shore of Stokes Bay.

Atriplex deltoidea. Waste place in Portsea Island.

Atriplex Babingtonii. In the sand on south coast of Hayling Island.

Atriplex laciniata. On the south coast of Hayling Island. (Only one plant seen.)

(The maritime plant marked *hastata* (?) may be the *deltoidea* γ *triangularis* (Willd.) of the 'Manual,' but I am much puzzled with the sea-shore varieties of this troublesome genus. Some of the specimens of *angustifolia* gathered on the beach both here and in the Isle of Wight have much broader leaves than the normal form of that plant, and are likely to mislead.)

Polygonum amphibium (*floating form*). Gomer Pond.

Euphorbia portlandica. I only gathered one plant of this in Stokes Bay, though Dr. Bromfield says it is there "very abundant and luxuriant."

Mercurialis annua β ambigua. Southampton. This plant was little more than a monœcious form of *annua*, though the leaves were rather narrower than the usual state of the plant.

It seems by no means uncommon in many parts of England.

Myrica Gale. Gomer Pond, abundant.

Spiranthes autumnalis. Dry bank near Portsmouth.

Iris fœtidissima. Portsea Island.

Juncus squarrosus. South-west corner of Hayling Island.

Alisma ranunculoides. Shore of Stokes Bay.

Sparganium simplex. Gomer Pond.

Ruppia sp.? Gomer Pond.

Zannichellia palustris. Gomer Pond.

Eleocharis uniglumis. Stokes Bay. (Surely only a seaside form of *E. palustris.*)

Scirpus Tabernæmontani. Portsea Island, ditches, etc.

Scirpus setaceus. Southampton.

Polypogon littoralis. Neither so plentiful nor so large now in the Portchester station as was mentioned by Dr. Bromfield; but still in considerable quantity, and larger than in Portsea Island. This species seems to flower much earlier than *P. monspeliensis,* its usual (? invariable) companion; in August the latter was in excellent condition, whereas *littoralis* was quite *passé.* In the descriptions of these plants in books, I think that the awns are in both plants described as too short.

Molinia cœrulea. South-west corner of Hayling Island. (Four feet high.)

Triticum acutum (DC.), *T. laxum* (Fr.). Hayling and Portsea Islands. (*The Triticum* of this coast.) (The "minute sharp points" on the upper surface of the leaf, are in my plants so minute as to require a very high microscopic power to discern them at all.)

Lepturus incurvatus. Southsea.

Aspenium Ruta-muraria. Wall of Haslar Hospital, Gosport.

Scolopendrium vulgare. Hayling Island, common.

I was enabled to verify many of Dr. Bromfield's localities for this part of Hampshire, but these are not included in the above list for the following reason: to republish already recorded localities is only waste of paper and printers' ink, besides burdening botanical literature with useless matter. Having given this opinion I must hope for my own credit that none of the above list is old and well-known, but if it be so, I apologize to the readers of the 'Phytologist' for occupying their time so unprofitably; and I hope that ere long we may see more Hampshire lists published in these pages, as it is thus that the flora of a large county must be gradually accumulated.

NORFOLK BOTANY.

Plants growing on Yarmouth Denes, and about Gorleston, Bradwell, Caistor, Ormesby, and Runham.

The town of Great Yarmouth is situated on the south-eastern point or extremity of the county, about twenty miles from the city of Norwich, and about ten miles from Lowestoft.

It stands on a sand-ridge, which is but slightly elevated above the line of coast. The promontory, or rather spit, on which the town stands is bounded on the west and south by the harbour or the estuary of the Yare, and on the east by the sea and the extensive sandy beach, sand-hills, and flats called the Denes.

The formation of this tract, which is extensive and constantly increasing, is well deserving the attentive study both of geographers and geologists. It explains how the harbours in South Kent and Sussex, viz. Sandwich, Hythe, New Romney, Rye, etc., have by the accumulation of the sand been gradually silted or filled up.

The Bure, a navigable river, which flows from above Aylsham and joins the river Yare at the head of the harbour, about two miles or so before the united rivers enter the sea, once flowed into the sea near Caistor by a channel which has long disappeared. It now flows in a direction almost parallel to the sea, for several miles before it reaches the ocean. Its ancient direct course has been diverted, probably at first by nature, and subsequently by art kept in its present direction.

The ancient town of Great Yarmouth is built on the wedge-shaped point or tongue of land which lies between the sea and the river, as before said, and the Denes are the north boundary of the borough.

The original town is built along the harbour, and consists of rows of good houses, fronting the river, and a series of Rows, as they are called, which unite the market-place and the principal street to the quay. These Rows are very numerous, upwards of a hundred and fifty, and so narrow that no vehicle of the ordinary description can pass through them. They are all thoroughfares, and lined with houses or courtyards, somewhat in the fashion of Eastern cities,—*parva componere magnis*, comparing small things with great.

The spacious market-place is on the most elevated part, and the declivity is towards the sea and the land also.

The newest erections are on the Denes, and appear to follow the sea, which is annually retreating and constantly adding to the land all along the shore, from the harbour-mouth northwards.

The grand esplanade, which is probably two miles in length, *i. e.* from near the Nelson Column to nearly opposite the North Battery, is far from being completed; and probably ere it is filled with buildings there may be room for another similar line between it and the sea.

The harbour is well secured at the mouth of the river by two strong jetties, which are intended to prevent the drift from blowing across its entrance. The channel is considerably contracted, and the great expanse of water in the part called Breydon supplies the means of scouring away what would form a bar and prevent vessels of heavy burden from entering.

The engineering peculiarities of this harbour are simple and eminently successful. The *broad* or Breydon is a vast reservoir of many hundred acres, and causes a strong current to set in toward the sea with the reflux, and thus prevents any very serious accumulation at the harbour's mouth.

It is probable that in a course of ages Yarmouth may be twenty miles from the sea, and the dangerous navigation called Yarmouth Roads may be united to *terra firma.* There is near the shore a deep channel, where ships ride safely at anchor; and at some distance beyond, there is a sand-bank, or a series of sandbanks, indicated by buoys, where there is no anchorage, and barely depth of water to admit of small craft sailing over at low water.

The celebrity of Yarmouth as a fishing-town will pass away when this great bay is entirely filled up and become pastures for herds and flocks, like the present Denes. Fish, worth catching, are usually found on or about sand-banks;—and though Yarmouth is not so eminent for its cod as the banks of Newfoundland, yet cod and other large fish are obtained here, and plenty of haddocks, mackerel, and herrings.

Fishing and navigation are the mainstays of Great Yarmouth. Miles of nets are spread out on the Denes every morning, and taken up in the evening and carted off to the yawls or fishing-boats.

The wheel carriages of Yarmouth are very characteristic of the place. They are of the simplest possible construction, consisting of two shafts with a few cross-pieces of wood where the load is placed, and where the driver stands. The wheels are very low, and are placed underneath the carriage, not by its side. They are as simple in their contrivance and structure as the rest of this antique vehicle.

The two wheels are united by what is more like a nave than an axletree, and they appear to move on an iron spindle, or pin, or rod, which is fixed into the frame of the carriage. The wheels appear to be so connected as to form one entire piece of mechanism.

These Yarmouth *buggeys* resemble the ancient British war chariots, only they have two poles and one horse. The ancient chariot had one pole, and was drawn by a pair of horses.

When it is considered that the soil of the Denes is as uniform as any soil can be, and that the exposure has as little variety as possible, the visitor will not be disappointed by the poverty of their flora.

The following list was compiled after walking over the Denes in all directions once or twice every day in the third week of July; these walks were taken mostly in the morning before breakfast, or in returning home from a longer walk.

It should be premised that the Denes, where most remote from the sea, are enclosed and surrounded by deep ditches, and the marsh plants are spreading in this direction.

Alisma ranunculoides is one of the marsh plants which are advancing onwards as the sea retires; and both forms of the great Water Plantain are common enough here, as everywhere else.

Cakile maritima and *Honckenja peploides* are genuine marine productions, never growing beyond the reach of the sprinklings of salt water.

Camelina sativa here, as everywhere else (?), tells its own story, viz. that it is an intruder. It was seen only in suspicious company; its confederates were *Kœniga maritima, Phalaris canariensis, Carduus marianus (Silybum marianum), Onopordum Acanthium, Delphinium Consolida, Erysimum cheiranthoides, Mercurialis annua,* and similar productions, which a genuine follower of the new and improved systems of phyto-geography would be ashamed to record. Ignorance of their history and of their names would be a sufficient qualification, *ceteris paribus*, for admission into the most exclusive and select of botanical coteries.

Carduus nutans and *C. tenuiflorus* abound on the verge of the Denes, and also where rubbish is shot. Are these not therefore justly suspected and liable to be shot into the three heaps of *rejectamenta* of British plants called EXCLUDED SPECIES?

Carex arenaria is present everywhere on the Denes, but it shuns the wet parts and nestles in the dry sands.

Cerastium arvense is exceedingly plentiful about halfway between Yarmouth and Caistor, beyond the North Battery. Here it is very ornamental. It is sometimes a tall plant and clings to the Furze and other rigid plants like *Stellaria graminea,* and in other places it is only a few inches high. Is it *C. strictum* in this state? If it be, it is a very accommodating plant, yielding itself to the species-maker like plastic clay to the potter.

Chenopodium Bonus-Henricus and *C. olidum* are also very plentiful. In the sand and at the bases of the walls the latter is nearly as frequent as Shepherd's Purse.

The most ornamental sea-sand plants are *Eryngium maritimum* and *Convolvulus Soldanella,* the latter especially in the evening, when its fine deep pink blossoms are fully expanded; the foliage of the latter is beautiful at all times.

The commonest plants on the Denes are *Galium verum*—the true Lady's Bedstraw, also one of the most ornamental in the later summer months—and *Ononis antiquorum.* These luxuriate in the dry sand and consolidate the loose soil.

Trefoils also abound, but with the exception of *T. suffocatum,* none of this genus that were seen by us are rare. The Haresfoot also, both the erect form and also the bushy maritime white variety, which was observed by Ray and the earlier botanists, but which is neglected by their more learned succsssors.

The Dog Violet, that which abounds about New Brighton on the western coast, is quite as plentiful here. The long creeping stems of this Violet help to retain and consolidate the shifting sand.

Jasione montana is another Dene-plant. This species is partial to sand of all sorts; but it grows more luxuriantly in the richer soil of Cheshire.

Lotus corniculatus would not appear in any list of *plantæ rariores*, only about Yarmouth—where the uniformity and poverty of the soil diminish the number of the species—every plant is worthy of observation.

Ranunculus Flammula grows about the edges of shallow grassy pools, often accompanied with *Helosciadium nodiflorum, H. repens ?*, and *H. inundatum*.

Rhinanthus Crista-Galli appears as a larger form or with a larger flower on the sand-hills about Caistor, than it usually bears when it appears on rich meadows. It is nearly as conspicuous as the form which grows in the Lincolnshire fens, and which is called a species and dignified with the epithet *great*.

The sand-hills about Caistor are covered with *Aira canescens* (*Corynephorus canescens*). This with *Triticum junceum* and *Elymus arenarius* constitute the grassy covering of these Dunes (Denes).

The rarest plant we observed was *Teesdalia nudicaulis*, in fruit. It appeared only in one place, about halfway between Yarmouth and Caistor. Near it we saw a single plant or so of *Thalictrum minus* (?), or what would have passed muster for this species a score of years ago.

Sisymbrium Sophia was very abundant on the turf fences skirting the Denes.

Vicia lathyroides is another of the scarce plants of this tract. It was so scarce that we only saw a single specimen; but our visit was rather later than the usual flowering period of this Vetch.

Sedum anglicum was plentiful in many parts of the coast, and especially near Caistor. It was far from unfrequent on the shores of Suffolk; and it was found nearly thirty years ago on the sandy shore of Mersea Island, Essex. In Ray's 'Synopsis,' Dillenius's edition, page 270, it is localized, "in sterilioribus Suffolciæ, itinere a *Yarmouth* ad *Donewich* (between Yarmouth and Dunwich). In litore marino prope *Brakelsham* (sea-coast near, etc)." *Plantago Coronopus* is one of the commonest of the Dene plants.

Frankenia lævis, which in former times, viz. in 1822, abounded by the mouth of the Yare, adjacent to the ferry, has long since disappeared.* Yarmouth has examples of defunct plants. Battersea, Peckham, Clapham Common, and Wandsworth are not the sole localities that have to bemoan the loss of their shady lanes, green fields, and rare species. The march of modern meliorations has reached as far as this remote corner of Norfolk. *Note.* This is the locality of *Trifolium suffocatum.*

These are most of the Denes' plants observed in July, 1862.

The Caistor and Runham marshes adjoin the Denes. There are between the marshes and the Denes, in most parts, only the road, and here and there a slip of cultivated land gained from the sea.

The river Bure runs through these marshes, and as they are in close proximity to Yarmouth, they were, like the Denes, often visited when we had but little time or were not disposed for a long walk. Our walk was usually along the brink of the river on the northern, or Caistor side, from Yarmouth to Runham.

Althæa officinalis, not yet in flower, ornaments the sides of all the cuts and ditches hereabout, but not quite so plentifully as in Romney Marsh. *Rumex Hydrolapathum* grows in deep water, almost always accompanied with *Hydrocharis Morsus-ranæ,* and more rarely with *Sagittaria sagittifolia, Hippuris vulgaris, Butomus umbellatus, Polygonum amphibium, Myriophyllum spicatum* and *M. verticillatum, Ceratophyllum demersum, Potamogeton gramineus, Sparganium ramosum* and *S. simplex.* By the brink of the river, and where the ground was daily covered by the tide, *Cochlearia anglica, Apium graveolens, Glaux maritima, Triglochin maritima, Plantago maritima, Atriplex marina, Samolus Valerandi,* throve well. *Conium maculatum, Delphinium Consolida, Agrimonia Eupatoria, Lepidium ruderale,* and less rare plants, grow on the upper parts of the bank, generally beyond the reach of the tide. *Torilis nodosa* grew on the path as plentiful as on the banks of the Thames below Woolwich.

About Runham village, *Mentha sylvestris* grows in the muddy ditches and in rubbishy waste places, accompanied with *Melissa officinalis,* the latter an outcast from the gardens.

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* A friend, who only a few years ago botanized about Yarmouth, etc., told the writer that there were fine examples of this plant, *Frankenia lævis,* hanging in festoons from the piers of the bridge at the head of the harbour. Will our Yarmouth correspondent be so kind as to tell us if this rare plant be still there?

Cineraria palustris (*Senecio* of recent authors) reported often from these marshes, we had not the pleasure of seeing, nor did we discover, any rare plants in this part of the country.

In going from Caistor to Ormesby, a plant, or perhaps two, of *Veronica montana* was seen, and a few bushes of *Rosa arvensis*, which probably is not rare, though we did not see much of it. *Lupulus Humulus* was another hedge-plant of these parts.

In going from Caistor to Ormsby, by turning somewhat to the left, the pedestrian may have the pleasure of seeing the ruins or remains of what is by courtesy called a castle, "Caistor Castle," an unsuspected tautology. *Caistor*, *castrum*, and *castle* are all synonymous terms, and these names betray their Roman or foreign origin.

On the walls of this castle we saw Wallflower (?), *Reseda Luteola*, *Echium vulgare*, etc. How many of these are British and how many are foreigners? And how is a novice to distinguish the natives from the aliens? By book learning? Unhappily the books, like some trumpets, give an uncertain sound.

The land on which Caistor and Ormesby stand is like what is observed in many parts of Norfolk, viz. a ridge of sand between two marshes. Caistor and Ormesby are on the ridge. Some remarks on the formations of this county will subsequently appear.

We were promised great success in the marshes beyond Caistor, especially about Horsey, where there are some extensive *broads*. These were beyond our beat.

Rumex palustris certainly grows about Yarmouth, and probably *R. maritimus* also. This did not grow in marshy places, as at Letchmere, near Wandsworth, but on dry open places, with several nitrogen-loving plants, such as Chenopods, Annual Mercury, etc.

On the Suffolk side of Yarmouth, viz. beyond the river, about Gorleston and Bradwell, the following were observed.

From Gorleston churchyard there is a lane which leads to a farm about a mile from the church; the farm is the first place after passing the church, and there the road or lane terminates.

About this farm, *Hyoscyamus vulgaris*, *Silybum Marianum*, *Onopordum Acanthium*, were plentiful enough, and all equally entitled to the rank of citizenship, or all deserving of banishment from the more respectable families of the small British vegetable kingdom. They might have all grown here for centuries, or they might have been as notorious upstarts as the Wandsworth plants.

They were countenanced by some more respectable individuals, viz. *Verbascum Thapsus* and *V. pulverulentum*, *Salvia verbenaca*, (Gorleston churchyard), *Pyrus Malus*, *Veronica montana*, *Pyrethrum Parthenium*,—also a suspected plant, but common compared with the above,—*Lastrea angularis*, *Scolopendrium vulgare*, *Tamus communis*, *Galium cruciatum*, *Anthemis Cotula*, *Hypericum humifusum* and *H. perforatum*, etc. etc.

About a mile or two from the end of this lane, there is a kind of path, but not a public one, to Bradwell church. In this churchyard, which has a fine situation and is as pleasant as such lugubrious places can be, there grows in considerable plenty *Rosa spinosissima* and *Smyrnium Olusatrum*,—the latter a plant questionable on the score of nationality, while the former rejoices in a pedigree which has never yet been impugned. In this sacred spot, these with several more common species find a congenial soil; they grow cheek by jowl, in close contact, like the ashes of the great and ignoble, the wise and learned, which mix with the remains of simple and innocent rustics; an example among many, of the living being nourished by the dead. Here the plants grow, and here they decay and perish; and probably they have been here since the church and churchyard were consecrated to the purposes of divine worship and Christian sepulture.

In the marshes near Gorleston, *Sium angustifolium*, *Carex Pseudo-cyperus*, and several common or aquatic plants, were observed.

Reviews.

Notes sur quelques Plantes rares ou critiques de la Belgique. Par François Crepin. Second Notice.

In a previous review of this important though small pamphlet, it was hinted that our readers would have another, though briefer, report of its contents. This implied promise is now to be redeemed.

Our author has proved by cultivation that *Epilobium ligula-*

tum, Baker, is *E. palustre*, var. *latifolium*. His experiments and the results are as follows:—

> "I sowed seeds obtained from *E. ligulatum* sent me by Mr. Baker, and I raised, with a slight difference, the typical form of *E. palustre*. The new species diminished in size, its stem became cylindrical, with the exception of two lines of hair developed from the point of *foliar* insertion (opposite leaves), and taking the place of two prominent lines between the lower joints. In this variety the curious stolons of *E. palustre* are equally well developed in autumn. This variety, in a wild state, has often the base of its stem creeping, and deeply buried in the turf; but when cultivated, its stem recovers its usual state, erect at the base."

In this species, *E. palustre*, and in *Oxalis stricta*, the stolons are very characteristic. There are in both (?) these, two kinds of stolons, produced from the axils of the lowermost leaves; the one sort producing only bulbils or little buds, the other rosettes of spreading leaves. Both kinds are capable of rooting and of continuing the plant on which they grow. Are botanists generally aware that *Oxalis stricta* has what is called a perennial duration, equally with *Epilobium palustre?* All authors describe the roots of the latter as perennial, and most call the former an annual.

Would physiological botanical observers have the goodness to tell students what is the difference between bulbils and rosettes? Or does the bulbil become a rosette when developed, and is the undeveloped rosette different from a bulbil? Is there any essential difference between them? Is it satisfactory to ascribe a different origin and organization to two bodies (or to separate them), if in process of time they are undistinguishable, and produce the same results, viz. living plants? It may be said that seeds, buds, bulbs, and stolons, are all equally capable of continuing the existence of the individual. Seeds, however, produce a new individual or a new variety of individuals, sometimes a new race. Detached bulbs, stolons, etc., whether they are developed above-ground, like the strawberry, or under-ground, like *Stachys palustris, Doronicum Pardalianches*, etc., only continue the individual or increase its number.

The above-ground stolons and the under-ground stolons differ little except in their position, either exposed to the light or developed in darkness. They equally produce plants exactly like their parents. Is not the economy, or origin, or organization, of the bulbils and the rosettes similar, and not analogous?

Another remark not unconnected with the duration of certain species is offered about the longevity of *Cynoglossum montanum*, a species long combined with *C. officinale*, and which, by all modern authors, not by Mr. Hudson, nor Dr. Withering, but from Sir J. E. Smith downwards, has been called a biennial.

The editor of the 'Phytologist' would not again have obtruded his views on a subject which was definitely settled years ago, viz. the duration of this species, if an opinion had not been consigned to him by the author of these 'Notes,' to which he has no just claim, which he takes the liberty of repudiating and rejecting *in toto*, as a groundless assumption which could not be seriously maintained by any person who has bestowed but a moderate share of his attention on the subject. He has no hesitation in asserting that the question has been decided both by history and experience, by testimony past and present, viz. that the plant in question is *not a biennial*, but a perennial; or its duration is as indefinite as that of the *Pulmonaria*, the *Symphytum*, and of many other plants of the Order, whose longevity was never called in question.

It may be that he did not state his opinion very decidedly, but he did not enter a single word militating against the opinion of his correspondent, who brought the question under the notice of the scientific public. Let our readers compare the article in the 'Phytologist,' and they will find that there is no ground for imputing this opinion to the editor.

Our excellent Belgian correspondent and friend, if he will allow us to call him by that honourable name, has debited us with an absurd opinion (*avis*) that the plant, though truly (*bien*) a biennial, may accidentally live three or four years, and flower two or three times. See 'Notes,' etc., p. 52.

The editor of the 'Phytologist' has often *vivâ voce* and *literâ scriptâ*, both in word and writing, affirmed that there is no certain duration implied in the term 'biennial;' that it sometimes signifies a few months, and sometimes a few years: for example, the Foxglove exists usually six months, and it is called a biennial. The garden *Angelica officinalis* exists generally two or three years, sometimes four years, and it is also called a biennial.

The terms 'annual' and 'biennial,' whether they denote a few weeks, a few months, or a few years, should be understood as expressing the duration of plants which only flower *once*, and then decay. Whatever may be the length of time elapsing between their first springing from seed, reaching maturity, and perishing, they agree in this, that they only flower once in their lives. It is possible to prolong the existence of these plants by preventing their flowering, and also by cutting off their flowers before the seed is come to maturity; but no plant which flowers more than once from the same root, or on the same stem or branch, can with any propriety be called an annual or a biennial. That an annual or a truly biennial plant can flower two or three times, even by accident, is a fact which needs confirmation strong as Holy Writ, ere it can be received into any orthodox phytological confession of faith. We will not own it, for it forms no part of our botanical creed.

The modern terms *annual* and *biennial*, in their natural legitimate sense and usual application, are deceptive and misleading expressions, and should be abandoned.

Some plants, popularly named annuals, have but a very short duration. Several Fungi do not exist above a day; some herbaceous plants barely survive a month. There are biennials which live only a few months, and there are others which endure several years.

The term 'perennial' is also very indefinite, embracing species which live a few years, and others which live, it may be said, for ever.

The Resedas and Saponarias are examples; some of the former barely flower twice, while the common Soapwort has a sempiternal duration.

Into which class is the American Aloe to be put? This plant is said to flower once in a century.

There are some species which are annual in one country, and perennial in another. How are they to be classified, as annuals or perennials?

M. Crepin concludes his note on the duration of *Cynoglossum sylvaticum*, for which we own our obligations to Mr. Sim, with the following: "C'est du reste là un fait assez fréquemment observé chez les plantes bisannuelles." If our author means that biennial species are frequently observed to flower thrice, or even twice, in two or three successive seasons, it is a fact which the editor of the 'Phytologist' has never seen, nor even heard of, and he decidedly repudiates the assertion that such a fact has ever been reported by him.

Though the terms now employed to express the duration of plants be not only indefinite, defective, and deceptive, a word is wanted to signify that a given or assumed plant flowers only once from the same root. The term 'annual' might be somewhat amplified in signification, viz. inclusive of what are called annual and biennial, and the latter should be discarded from descriptive works.

Cynoglossum sylvaticum, var. *C. montanum*, or *medium*, or *virens*, or *virginicum*, or *germanicum*, *apenninum*, or *officinale* β, is neither annual nor biennial, but has a duration as extensive and indefinite as *Symphytum tuberosum*, though it does not increase so fast by radical buds, shoots, etc.

On pp. 53–58 there is an elaborate article on the various species or varieties, or on both, of the genus *Lappa*, which is here commended to the notice of the inquisitive; and a few questions are propounded about the term *type*, which is now so commonly met with in descriptive scientific works.

To help our readers to understand the drift of the question or questions which follow, let them assume that the typical forms of roots are *fibrous*, of stems *cylindrical*, of leaves *flat*, of flowers *circular*. Of these typical forms there are several modifications; for example, some roots are fleshy and fibrous, some stems angular, some leaves cylindrical, some flowers cruciform, triangular, etc. Is the type of the entire vegetable creation, or of its individual organs, to be found amongst the simplest, or among the most complex forms? What is the type of a Class or of an Order? Is it to be found in the simplest Order or genus, or in the most complex? Is it a plant or an idea—a thing or an abstract notion?

What species is the type of a genus? What individual plant is *par excellence* assumed to be the type of a species?

Do authors know what they mean by *type?* If they do, it would be worth their while to enlighten their less learned brethren, who may wish to be their humble tractable disciples.

On what principles do authors decide or assert that a certain form, say, for example, *Lappa minor* or *L. intermedia*, is a species, and *L. pubens* a variety? How is the typical character of *L. minor* ascertained? Are there no typical forms among the group called *L. pubens?* What merit has the former to entitle it to this high pre-eminence? And wherein consists the inferiority of *L. pubens,* that it should be consigned to obscurity?

Are there gradations in typical rank? Do some individuals approach nearer to an ideal type than others do?

Are all types ideal, both perfect, less perfect, and abnormal types? Are the descriptions of genera, species, etc., drawn up from individuals or from the imagination? Are types really natural existing things or poetic inventions, realities or imaginary creations, facts or fancies? What is the history of this term, 'type'? When was it introduced? Is it connected with the new science, ethnology? What are the synonyms of 'type'? What is its value, or import, or meaning, in the vocabulary of botanists?

Page 62 contains a notice of the discovery of *Artemisia camphorata* by one of our fair correspondents. See 'Phytologist' for December, 1861, No. 80.

Crepis nicæensis, a species new to Belgium, may possibly turn up in such places as Battersea, Wandsworth, or Kew Bridge. Some two years ago a very large form of *Crepis biennis* sprang up *hortulo in nostro Chelseyano,* and the same was detected among a lot of specimens collected at Kew Bridge, a place notoriously suspicious. Our garden example did not originate in that quarter.

Bromus patulus, a Grass frequently seen at Wandsworth in former years, but not to be found there now, is another of the recently detected plants of Belgium.

B. arvensis, M. Crepin remarks, has often, in Belgium, been mistaken for *B. patulus,* and it is not very improbable that in England *B. secalinus* has been occasionally mistaken for *B. squarrosus,* a south of Europe species.

In order to assist our readers in determining this plant, *B. patulus,* viz. such of them as have no good descriptions or figures of the species, we quote the following distinctive marks from M. Crépin's 'Notes,' p. 75:—

"The panicle of *E. patulus* always inclines or droops to one side; its branches are very slender and flexible. The spikelets are larger than in *B. arvensis;* the glumes are broader, and more closely imbricated, even at maturity, than they are in the other; the upper glumelle is sensibly shorter than the lower one; the awns are longer, always twisted and divaricate (divergent) in clear warm days, seldom erect, or but slightly spreading; its anthers are very short. *Note.* The awns are long in *B. arvensis.*

Manuscript Magazine of the Glasgow Naturalists' Society.

No. 3, for July, 1862.

Our excellent friend and correspondent Mr. "W. G." has just sent another volume or number of this singular, and pleasing, and instructive miscellany. It has been read with delight, and its varied contents will help to fill up several spare places in our own publication.

As has been already remarked, in reviewing the second number, it is not a fair subject for criticism, as it can only be seen by a very small section of our readers, viz. those who dwell in St. Mungo's diocese, the Barony, the Gorbals, the Goosedubs, and other parts of the great western emporium.

The contents of this number are multifarious, but all quite appropriate, embracing some one or other of the branches of natural history.

The first article is a "Contribution towards a Flora of the Counties of Tyrone, Londonderry, and Donegal." This is a large subject, but the contribution towards its flora is a generous one, between six and seven hundred species,—a good beginning. Some of the plants are of great rarity, particularly *Anemone ranunculoides, Arenaria verna, Draba incana, Silene Armeria, Erodium moschatum, Rosa cinnamomea, R. hibernica, Saxifraga umbrosa, Ligusticum scoticum, Hypochœris maculata, Crepis biennis, Hieracium cerinthoides, Anchusa sempervirens, Veronica peregrina, Polygonum Roberti* (what is this?), *Euphorbia hiberna, Potagometon prælongus, Adiantum Capillus-Veneris,* etc.

Every botanist would enjoy a month's botanizing in the north-west of Ireland in June and July, when the summer days are long; would they were aye fine! It may be safely predicted that the collecting books and boxes of a party of London botanists would soon be filled with the productions of the rocky shores of the Atlantic, and of the mountains, bogs, loughs, and rivers, of *Ould* Ireland.

The next article is a monograph of the British Titmice, with an illustration. To this there follow in succession, Conglomerate papers (geological), "On the *Comparitive* Physiology of Digestion." Is *comparitive* a slip—a *lapsus calami*—or a new mode of spelling this word, which is from the Latin *comparativus,* from *comparo?* It is a freak of the index-maker; on referring to p. 77, the reader will see that the usual orthography has been adopted.

Next there are "Rambles of a City Naturalist" (geological and antiquarian), "*Limnæa auricularia*" (zoological), "Dredging Days," "Mammon, Eros, and the Naturalist; or, Catching a Dryad." Some reader will think or say—What is this? It is, *lector benevolentissime,* a good-natured bantering article on *utilitarianism,* or what some call practical philosophy, and others the pleasant art of money-catching. The hero of this tale ran away after a Dryad, and caught—what?—not a Tartar, but some rural or sylvan beauty, and was himself caught and carried off by a stronger captor, better known by the common name of Cupid than Eros.

Three papers, named "Botanical Notes," follow the tale of Cupid and his frisky captive. "A Visit to the Giant's Causeway," "Catkin Braes" (botanical), "The Hydra Rock-Pools," "Properties and Uses of the British Wild Plants," "Scientific Memoranda of the past Half-year," "Chronicles of the Glasgow Naturalists' Society," "Answers to Correspondents" fill up the volume, or are the contents of this number of the manuscript magazine. They are not wanting in variety, and they are all replete with both interest and information, blended with some humour.

One article was accidentally omitted, viz. that on the "Origin and Distribution of Plants," on which a remark or two may be hung, *non per collum, sed per occasionem.*

On this subject there are two questions which logicians call two of the ten predicaments of the Stagyrite, viz. the *quando* and the *ubi;* when and where—neither of those categories has been satisfactorily determined in the above science. The dispute about specific centres and successive increasing distribution is premature.

Consider the *locus,* or the word responding to the question *where;* give the geologist his myriads of ages for the disseminations and distributions of a few alpine species originally created as individuals on Greenland's icy mountains, and which, by continuous migrations on floating icebergs, have been carried to Scandinavia, Wales, Scotland, the Carpathian Mountains, the Alps, the Pyrenees, the Himalayas, the Andes, and nobody knows how far: all this is possible, and what is assumed by these *savants* may be conceded. But what clouds of dust must these wise men raise to blind the eyes of observers to facts which have been accomplished in historic periods! A muddle of learned locutions may envelope the transmigration of species during prehistoric ages, but we want to clear up what has taken place in the days of our progenitors, and almost under our very noses.

How were the fens of Lincolnshire, Norfolk, Essex, Kent, and Sussex, furnished with their specific, peculiar vegetation—from the bottom of the sea, of which they were part not many years ago; or from the adjoining hills of chalk, greensand, etc.? When were their plants first produced, and where did they exist till the fresh water and marsh-lands were prepared for their present habitation? Was only one single plant created for their supply, or were myriads produced?

Where did the endemic (the peculiar) plants of the Azorean Islands dwell ere there was land raised up from the deep channels of the Atlantic? It may easily be granted that they are *wise* men who can satisfactorily answer these difficult questions. It is possible that both parties of the scientific are right in a measure, and both wrong, when they generalize. The creation of individual plants in prehistoric times may be sufficient to account for some phenomena of vegetation, while different laws must be assumed to explain the admitted existence of other facts.

Do any of the learned claim the knowledge of the Most High? Did He consult them when He laid the foundation of the earth, and caused grass to grow for cattle, and roots, herbs, and fruits, for the service of mankind? What is the sum, and what is the real value of our knowledge about the origin of our earth, and its multifarious productions? The great poet calls him happy who understands the causes of things:

> "Felix qui potuit rerum cognoscere causas."
>
> . . . .
>
> "Fortunatus et ille qui novit Deos agrestes."

"And happier he who worships Nature's God."

How much of what is now dignified with the name of science can be comprehended in Aristotle's definition of knowledge, viz. that which is comprehensive, exact, and which could not be otherwise?

If modern science, represented by the terms *origin* and *distribution* of plants, *specific types*, *Germanic*, *Atlantic*, Scottish types, local, distributive, general types, etc., be science, the Stagyrite's definition of science, which mankind have accepted for many ages, must be changed or expunged from our scientific formulas; for many of the facts revealed by our modern teachers of science *could* be otherwise.

BOTANICAL NOTES, NOTICES, AND QUERIES.

ANSWERS AND NOTICES TO CORRESPONDENTS, WITH REMARKS, NOTES, QUERIES, ETC.

1. GATHERINGS ON BRAUNTON BURROWS. See p. 355.—An apology is offered to our readers for the following list of typographical errors in the article on the botany of Braunton Burrows, printed in the December number. Our correspondents would greatly oblige us by writing *all proper names* as legibly as they can. Page 355, line 23, for 'Cowhe' read ''Combe' (short for Ilfracombe); for 'Mutchoe' read 'Mortehoe;' l. 30, for '*Asplenium*' read '*Athyrium*;' l. 34, for 'richly-covered' read 'richly-carved.' P. 356, l. 15, for 'Hill-rush' read 'Bulrush;' l. 22, for '*E. cicutarium a maritimum*' read '*E. cicutarium* and *maritimum*.' P. 357, l. 19, for '*Lecopsis*' read '*Lycopsis*;' l. 37, for 'Mutchoe' read 'Mortehoe;' for 'rock-post' read 'rock-pool;' for 'dew' read 'sun;' l. 40, for 'Rain' read 'Time.' P. 358, l. 14, for 'to Saunton End' read 'to the Saunton end.'

2. BARMOUTH FERNS.—Our reverend Oswestry correspondent is hereby informed that his paper on the Welsh Ferns will appear as soon as we have room. The Editor is much indebted to the author.

3. A private missive will soon, it is hoped, be ready for our fair and obliging Brussels correspondent.

RICCIA NATANS.—Would you allow me to ask the readers of the 'Phytologist,' if *Riccia natans* is still found in this country, and if so, would any one kindly supply me with a few live specimens?—WALTER W. REEVES, 20, South Street, Greenwich.

EXOTIC AND RARE PLANTS AT WANDSWORTH.

Three years have now elapsed since an interesting article appeared in the 'Phytologist' on the exotic and rare plants growing spontaneously on a piece of waste ground adjoining the Wandsworth steamboat pier. Part of this ground is now enclosed, so that but a comparatively small part is now open to the botanist. In the autumn of the now past year I visited this place several times, and it may not be uninteresting to botanists in general, and to the London botanist in particular, to learn the result of my explorings. I must first mention, however, that the piece of ground alluded to is divided into three parts by two rows of palings, which cross it near the centre. In the third of these divisions, counting from that nearest the pier, nothing worth notice is to be found, but the first two make up for its deficiency by the richness and variety of their vegetation. In the second of them is a depression, full of black, or rather brown, mud, but at high tide the water enters and fills it.

I will now, as briefly as possible, give a list of those plants which I have found in the first of these divisions, with their comparative frequency, and the dates and duration of their appearance.

Ranunculus hirsutus	A single specimen	Sept. 13.
Delphinium Consolida	A single specimen	Sept. 18.
Erysimum cheiranthoides	Very scarce	Sept. 18.
Sinapis nigra	Not unfrequent	Oct. 4.
Diplotaxis erucoides ?	A large plant	Oct. 4.
Diplotaxis tenuifolia	Not unfrequent	Sept. 15.
Enarthrocarpus lyratus	A single specimen	Oct. 21.
Melilotus parviflora	Very abundant	Sept. 11.
Melilotus messanensis	Not common	Sept. 11.
Erigeron canadensis	Abundant	Sept. 18.
Calliopsis bicolor	Not unfrequent	Sept. 18.
Chrysanthemum segetum	A single specimen	Oct. 4.

The italicized plants in the above list are those which are universally known to be foreign to this country; the solitary plant of *Delphinium Consolida* bore pink blossoms, and none of the above could be considered abundant, save *Melilotus parviflora* and *Erigeron canadensis*, neither of which are indigenous. In the second division a still greater profusion of plants occurs, as will be seen by the following list:—

Papaver Argemone	Not unfrequent	Sept. 11.
Lepidium Draba	Abundant	Sept. 11.
Erysimum orientale	Not unfrequent	Sept. 13.
Diplotaxis muralis	Not unfrequent	Sept. 13.
Silene noctiflora	A single specimen	Sept. 15.
Spergula nodosa	Abundant	Sept. 15.
Ononis, sp. ?	Not unfrequent	Sept. 15.
Medicago denticulata	Abundant	Sept. 13.
Medicago, sp. ?	Not unfrequent	Sept. 18.
Melilotus arvensis ?	Very abundant	Sept. 11.
Melilotus leucantha	A single specimen	Oct. 4.
Melilotus messanensis	Very abundant	Sept. 11.
Trifolium resupinatum	Very abundant	Sept. 11.
Trifolium constantinopolitanum	Very abundant	Sept. 11.
Trifolium, sp. ?	Abundant	Sept. 13.
Trifolium hybridum	Not unfrequent	Sept. 13.
Lythrum hyssopifolium	Abundant	Sept. 13.
Ammi majus	Abundant	Sept. 13.
Torilis nodosa	Very abundant	Sept. 13.
Torilis infesta	Abundant	Sept. 11.
Peucedanum, sp. ?	Not unfrequent	Sept. 18.
Centaurea Cyanus	Not unfrequent	Sept. 11.
Centaurea Calcitrapa	Sparingly	Sept. 11.
Anthemis arvensis	Abundant	Sept. 13.
Veronica Buxbaumii	Not unfrequent	Oct. 4.
Anagallis cœrulea	Very abundant	Sept. 13.
Plantago Lagopus	Very abundant	Sept. 11.

As regards the plants in the preceding list, nearly all of them were in full blossom; *Lepidium Draba*, however, was principally in seed, though flowering specimens were not wanting. This was also the case with *Erysimum orientale*, only one specimen of this being in blossom. *Spergula nodosa* was abundant by the stone coping on the Thames wall. The species of *Ononis* I could not ascertain, as the plants were all very young, but they will probably blossom next year. The *Medicago* was in blossom, but did not appear to be any one of those mentioned in the former list of 1859. The *Melilotus* I believe to be *M. arvensis*, but as this genus is at present in an unsettled state, I decline hazarding any opinion on the matter. *M. messanensis* was as abundant in this division as *M. parviflora* was in the former. The *Trifolium* which I have left unnamed I had never met with before, and will not venture to determine it. *Lythrum hyssopifolium* was abundant, both in seed and in a young state, but no specimen was in blossom. A curious fact may be mentioned regarding *Anagallis cœrulea*, that, whereas this was extremely abundant, *A. arvensis* occurs but once, and then in a situation far removed from *A. cœrulea*. *Plantago Lagopus* is likewise extremely abundant. Before concluding, I may just mention that all, or nearly all, of the plants here mentioned were in blossom at the stated times, and I would also just hint to London botanists that the spot is well worth a visit, as new treasures appear on almost every occasion, and I also wish that they may be as successful as I have been.

J. BRITTEN.

To the Editor of the 'Phytologist.'

Sir,—I am indebted to a review of the 'Canadian Naturalist' in your last number, for pointing out an error in my paper on the White Mountains, which I had overlooked in reading the proof. The words, "those which on the one hand escape," should be, "that which on the one hand escapes." Allow me also to say that I am not the author of a 'Flora of the White Mountains,' nor indeed one of the regular workers in that field. My little excursion was undertaken principally with the view of collecting material for the study of the plants found in a subfossil state in the post-pliocene deposits of Canada; and the notes published in the 'Naturalist' were intended to direct the attention of naturalists in this country to the geological and geographical questions connected with these plants.

J. W. DAWSON.

M'Gill College, Montreal, November 20, 1862.

CONVOLVULUS SEPIUM, *flore roseo*.

About two miles southward of Ryde, in the Isle of Wight, is a place called Upton, a spot about 280 feet above the level of the sea. On this spot stands, very conspicuously, a large windmill, from which are most extensive views of sea and land: looking north, is seen, Ryde, the Solent Sea, and the opposite coast of Hants., with Portsea, Portsmouth, and Portsdown Hill beyond. To the east is seen Hayling Island and the coast of Sussex, the Channel beyond, Chichester, and its cathedral. To the south, Ashey, Mesley, Arreton, and St. Catherine Downs; and to the west, Osborne, Norris Castle, the Southampton Water, and the town of Southampton about fifteen miles distant. The following is taken from Barber's 'Views of the Isle of Wight:'—

"*The Mill at Aldermore.*—An easy effort, the distance not exceeding a mile and a half. The direction is south, through Upper Ryde, and will lead, after passing the turnpike by Haylands, to the seat of Admiral Locke; Upton House, the residence of James P. Lind, Esq., M.D., is also in the vicinity. The view from the mill on a favourable day realizes some of the most magnificent effects of a well-executed panorama. The principal objects are, north, the Solent, and the coast beyond; east, Bembridge Down, with the fine sheet of water called Brading Haven; south, Runwell and Ashey Downs, the latter distinguished by the peculiar rotundity of its swell, and by its sea-mark; west, inland scenery, possessing much of the richness that so generally characterizes the island."

This spot is one of the *lions* pointed out to the visitors of Ryde when they are inclined to go lion-hunting, but I do not wish to lead you into this furious sport, but to take you on the road further south, about six hundred yards, to Upton Farm, occupied by Mr. James Isaacs. This farm is situated on the right-hand side of the road, and there is a way through it into a bridle-road across a field westward, to another farm called Kemp Hill. Along this bridle-road, after getting over a five-barred gate (for the gate is generally fastened), is a hedgerow on a dry bank, some distance from any garden. On this bank I found growing *Convolvulus sepium flore roseo*, a specimen of which I sent you in August last. The growth of the plant is not so luxuriant as the *C. sepium* which grows near it; its flowers are not quite so large as the *C. sepium*, and are rose-coloured, with five stripes of white; its leaves are also different in shape to the *C. sepium*, and the edges are brown. In September, 1857, I found this plant growing in the same place, and I sent you some of its flowers, but I do not think any notice was taken of it in the 'Phytologist.' Will you kindly give your opinion as to whether you think it a new discovery?

HARRIET BEISLY.

PERTH BOTANY.

Aremonia agrimonoides.—This plant, which has caused no small stir among limitarian botanists, has been discovered in another locality in this district. A young lad, a lover of flowers, belonging to Perth, was last May collecting plants on the banks of the Almond, two miles north of Perth, where, among other things, he collected the *A. agrimonoides.* (He is not a botanist.) He showed his collection to a man in Perth, who knows a good many of our common plants. I chanced to see the latter a few days ago; he told me a young lad (William Hogg) had brought him from the banks of the Almond a bit of a plant which he never had seen, and knew nothing at all about; but from the description he gave me, I at once concluded it to be the *Aremonia.* I sent for the young lad myself, and he fortunately had a bit of it, which he showed me, which set the matter at rest, and confirmed my opinion. I enclose a small fragment. This new station is in a plantation (partly planted by man, partly by nature) on the left bank of the Almond, near its confluence with the Tay, two miles north of Perth city, and one mile west of Scone Palace. You will please announce this in the 'Phytologist' for the delectation of some of our friends who like to hear the truth, even though it upsets some of their pet theories. JOHN SIM.

RUBUS LACINIATUS.

This truly beautiful Bramble was discovered by my worthy friend, Mr. White, of Perth, early this month (October, 1862). He told me he found it growing amongst other *Rubi* on the north-west side of Kinnoull Hill, near its summit, and about the middle of the wood. Its discovery was quite accidental and unexpected. His object that day (if I mistake not) was chiefly collecting Mosses, and, in passing through the wood, his attention was arrested by its handsomely-cut foliage and pinkish-red blossoms; he collected two or three sprigs, and gave me one to compare with the *Rubi* in my herbarium, but neither in my collection nor in his own had we a similar species. The business was now—what ***Rubus*** is it? After much searching and inquiry, we have determined it to be ***Rubus laciniatus***, not recorded in any of our works on British botany, but not the less likely to be a British plant, though unobserved hitherto by the compilers of our British floras. Ill health has prevented me from visiting the locality, which is just about a mile from my house, but I know the spot, and shall (D.V.) visit it personally as soon as able. Mr. White says he observed about five or six thriving bushes (plants) of it; the locality is about five hundred feet elevated about the Tay. I do not wonder that it has never been discovered here before, as the north side of the hill is quite uninteresting in a botanical point of view; it is the south side, from the summit downwards, that contains the many rarities already recorded in the pages of this Journal, from which I see that this ***Rubus*** has been already observed in other parts of Great Britain. JOHN SIM.

Bridge End, Perth, October, 1862.

FORMS OF LASTREA FILIX-MAS.

It has been obvious to me for many years that some of the forms of *Lastrea Filix-mas*, now known only as *varieties*, are fully entitled to the rank of *species*, and I would suggest to pteridologists the following specific names and characters as being appropriate:—

Lastrea Filix-mas . . to be called *L. Filix-mas*.
var. *paleacea*, M.* „ *L. pseudo-mas*, W.
var. *abbreviata*, M. „ *L. propinqua*, W.

Diagnostics.—LASTREA FILIX-MAS.—*Partly deciduous*, lying prostrate in winter; fronds lanceolate, bipinnate, attaining nearly five feet in length; pinnæ elongate deltoid, pinnate, pinnulæ oval, serrate, *very slightly auricled*, the lowest pair being rather longer than the rest; indusium *when young* subpeltate (or like an inverted soup-plate), *not embracing the spore-cases*, partially evanescent.

LASTREA PSEUDO-MAS (W.).*—*Subevergreen*, not prostrate in winter, coriaceous; fronds lanceolate, bipinnate, attaining full five feet in length; pinnæ elongate, deltoid, or pyramidal, pinnate; pinnulæ paralleloid or linear-obtuse, *not auricled*, serrulate, the first anterior and posterior pair scarcely longer than the rest; indusium when young *embracing spore-cases*, persistent, subrotund, depressed.

LASTREA PROPINQUA (W.).—*Deciduous*, subalpine; fronds ovate lanceolate, bipinnate, attaining but rarely four feet in length; pinnæ pinnate, pyramidal, inciso-lobate; pinnulæ *biserrulate*, crisped, *strongly auricled*, basal pair stipitate, much longer than the rest; indusium embracing the spore-cases. B.

Chiselhurst, October 27th, 1862.

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* See 'Phytologist,' new series, vol. i. p. 172; remarks on name, spores, etc.; pinnulæ used instead of pinnules. "M.," Moore. "W.," Wollaston.

KENTISH BOTANY.

Centaurea solstitialis, Yellow Stor-Thistle, Barnaby's Thistle.—On Friday, the 5th of September, 1862, I found this plant growing in a clover-field on the north side of the road leading from Bromley to Chiselhurst. This field forms part of the Beckley estate, lately purchased by George Wythes, Esq., and which formerly belonged to Mr. Wells, who occupied its mansion, etc. Some houses are being erected at the top of the field, and shortly I expect the whole meadow will be covered with bricks and mortar. Could you tell me why this flower is called St. Barnaby's Thistle? St. Barnabas's day is on the 11th of June, and the 'Floral Directory' states that the *Chrysanthemum leucanthemum* is the flower dedicated to St. Barnabas. S. BEISLY.

SHAKSPEARE FLOWERS.

I think it is generally agreed by the contributors to the 'Phytologist,' that the flower called Long Purples in 'Hamlet' (forming part of Ophelia's garland) is the *Orchis mascula;* but I was asked by Mr. Perry, of Warwick, a few days since, whether Shakspeare might not have intended the *Arum maculatum* as Long Purples. I doubt this, because I think the *Arum* would not have been so readily found in the "meadow near the brook, across which the Willow grew aslaunt," as the *Orchis mascula;* but I should feel much obliged if some of your readers can inform me if they ever heard the *Arum* called Long Purples. It is called by other names, such as Starchwort, Lords-and-Ladies, Cuckoopint, Wake-robin, Calf's-foot, and Rampe, but I never heard it called Long Purples. The *Caltha palustris* is called "May-blobs" by the children who gather the flower in the meadows near Warwick; they also call the Wood Anemone (*A. nemorosa*) "Granny's Nightcap;" and the *Stellaria holostea* is called by them "Billy White's Buttons." S. BEISLY.

LIST OF ALPINE PLANTS FOR SALE.

Wulfenia carinthiaca; several Gentians, among which *Gentiana purpurea; Gnaphalium Leontopodium* (*Leontopodium alpinum*), and others of that genus; *Dryas octopetala, Campanula spicata, Saxifragas, Violas, Cyperaceæ*, and *Gramineæ*. Intending purchasers may apply to A. I., 28, Upper Manor Street, Chelsea, S.W.

Communications have been received from

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Notes on Books.
The Edinburgh Weekly Review, December 6.
The Argyleshire Herald, December 5.
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AUTHOR OF 'THE HANDBOOK OF BRITISH FERNS,'
'THE FERNS OF GREAT BRITAIN AND IRELAND, NATURE PRINTED,' ETC.
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Part 1—contains Synopsis of Genera, Classification, etc., pages .... ix.—lvi.
Part 2.—Ditto Ditto Ditto pages .... lvii.—civ.
Part 3.—Ditto Ditto Ditto pages cv.—cxxviii.; and Alphabetical Index, pages .... 1—24.
Part 4.—Alphabetical Index, pages .... 25—72.
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Parts 17 & 18.—(Double Part) pages 337—360, and Plates .... 63—72.
Part 19.—Table of Genera, pages cliii.—clxii.; Alphabetical Index, pages 361—372, and Plates .... 73—78.

☞ Part 20 is nearly ready, and it is confidently hoped that, as much of the remainder of the Work is in a forward state, there will be but little delay in issuing the future portions.

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